

WHAT IS CLAIMED IS:

1. An optical module comprising:
a photo receiver having a receiving surface;
5 a first positioning member having a side surface to which
said photo receiver is secured; and
a second positioning member having a first groove formed
in an upper surface thereof for positioning an optical fiber,
and a second groove formed in said upper surface thereof, said
10 second groove extending from a side surface of said second
positioning member to said first groove and being connected to
said first groove, said photo receiver having partially housed
in said second groove, and said side surface of said first
positioning member being secured to said side surface of said
15 second positioning member.
2. The optical module according to Claim 1, wherein said
second positioning member includes a position indicator for
substantially indicating a position of a center of a light spot
20 which is to be produced on said receiving surface of said photo
receiver by light emitted out of an end of said optical fiber
positioned by said first groove.
3. The optical module according to Claim 2, wherein said
25 position indicator of said second positioning member has two
marks for substantially indicating an intersection where an
optical axis of said optical fiber intersects with a plane
including said side surface of said second positioning member.
- 30 4. The optical module according to Claim 3, wherein said

two marks are two grooves formed in said upper surface of said second positioning member on both sides of said first groove so that they are running at an equal distance from said first groove, said two grooves extending from said side surface of said second positioning member and being identical in cross-sectional shape.

5 5. The optical module according to Claim 4, wherein said two grooves are V-shaped in cross section.

10 6. The optical module according to Claim 2, wherein said photo receiver has a position indicator for indicating a center of said receiving surface.

15 7. The optical module according to Claim 6, wherein said position indicator of said photo receiver is two marks disposed in the vicinity of said receiving surface.

20 8. The optical module according to Claim 1, wherein said first groove is sloped relative to said side surface of said second positioning member to which said side surface of said first positioning member is secured.

25 9. The optical module according to Claim 1, wherein said first positioning member is so sized that a bottom surface thereof perpendicular to said side surface thereof to which said photo receiver is secured is higher than a bottom surface of said second positioning member which is opposite to said upper surface of said second positioning member in which said first groove is
30 formed.

10. The optical module according to Claim 1, wherein said second positioning member is constructed of a silicon substrate.

5 11. The optical module according to Claim 1, wherein a part of said side surface of said first positioning member is bonded to said side surface of said second positioning member with an adhesive.

10 12. The optical module according to Claim 1, further comprising a package having an inner wall to which a bottom surface of said second positioning member and a bottom surface of said first positioning member are bonded, for housing said first and second positioning members.

15 13. A method of producing an optical module, comprising the steps of:

securing a photo receiver to a side surface of a first positioning member;

20 measuring a position of a receiving surface of said photo receiver secured to said first positioning member;

substantially measuring a position of a center of a light spot which is to be produced on said receiving surface of said photo receiver by light emitted out of an end of an optical fiber
25 to be positioned by a first groove formed in an upper surface of a second positioning member;

based on the measured position of said receiving surface of said photo receiver and the measured position of the center of the light spot, aligning said first positioning member and
30 said second positioning member with each other; and

securing said side surface of said first positioning member and a side surface of said second positioning member to each other after said aligning step is completed.

5 14. The optical module producing method according to Claim 13, wherein the light spot position measuring step is the step of substantially measuring the position of the center of the light spot by using a position indicator formed in said second positioning member, for substantially indicating the position
10 of the center of the light spot which is to be produced on said receiving surface of said photo receiver by light emitted out of an end of an optical fiber to be positioned by said first groove.

15 15. The optical module producing method according to Claim 14, wherein said position indicator has two marks for substantially indicating an intersection where an optical axis of said optical fiber intersects with a plane including said side surface of said second positioning member.

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 16. The optical module producing method according to Claim 15, wherein said two marks are two grooves formed in said upper surface of said second positioning member on both sides of said first groove so that they are running at an equal distance from
25 said first groove, said two grooves extending from said side surface of said second positioning member and being identical in cross-sectional shape.

 17. The optical module producing method according to Claim
30 15, wherein the light spot position measuring step is the step

of producing an image of said two marks, performing image processing on the produced image so as to measure positions of said two marks, and determining the position of the center of the light spot based on a position of a midpoint between the
5 measured positions of said two marks.

18. The optical module producing method according to Claim 13, wherein said receiving surface position measuring step is the step of measuring the position of said receiving surface
10 based on a shape of said receiving surface of said photo receiver.

19. The optical module producing method according to Claim 18, wherein said receiving surface position measuring step is the step of producing an image of said photo receiver, recognizing
15 the shape of said receiving surface by performing image processing on the produced image, and setting a centroid of the shape to be the position of said receiving surface.

20. The optical module producing method according to Claim 20 13, wherein said receiving surface position measuring step is the step of measuring the position of said receiving surface by measuring positions of two marks formed on said photo receiver in advance.

21. The optical module producing method according to Claim 25 20, wherein said receiving surface position measuring step is the step of measuring the positions of said two marks by producing an image of said two marks and performing image processing on the produced image.

22. The optical module producing method according to Claim 13, wherein said securing step is the step of securing a part of said side surface of said first positioning member and said side surface of said second positioning member to each other by bonding the part of said side surface of said first positioning member to said side surface of said second positioning member.

23. A method of producing an optical module, comprising the steps of:

10 securing a photo receiver to a first positioning member;
 placing an optical fiber in a groove formed in an upper surface of a second positioning member and connecting a laser light source to an end of said optical fiber;

15 aligning said first positioning member and said second positioning member with each other so that laser light emitted out of said laser light source and then output from another end of said optical fiber is optimally incident upon said photo receiver; and

20 securing said aligned first and second positioning members to each other after said aligning step is completed.

24. A method of producing an optical module, comprising the steps of:

25 securing a photo diode to a first positioning member;
 placing an optical fiber in a groove formed in an upper surface of a second positioning member and connecting an optical receiver that outputs a signal corresponding to light received to an end of said optical fiber;

30 causing said photo diode to emit light by applying a forward voltage to said photo diode;

aligning said first positioning member and said second positioning member with each other so that the light emitted out of said photo diode is incident upon another end of said optical fiber, and further aligning said first positioning member
5 and said second positioning member with each other according to a signal output from said optical receiver; and

securing said aligned first and second positioning members to each other after said aligning step is completed.

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